

**ANTI-DANDRUFF AND ANTI-ITCH COMPOSITIONS CONTAINING SENSATE AND
SENSATE ENHANCER-CONTAINING COMPOUNDS**

FIELD OF THE INVENTION

Our invention relates to anti-dandruff and anti-itch compositions comprising:

- (a) an anti-dandruff agent, such as the zinc salt of 1-hydroxy-2-pyridine thione or an anti-itch agent such as beta-methasone valerate;
- (b) a cooling sensate material, such as menthol or a mixture of menthol with 2-isopropyl-N,2,3-trimethylbutyramide; and
- (c) a cooling sensate enhancer, such as vanillyl butyl ether, nonylic acid vanillamide or Jambu oleoresin.

Our invention also relates to anti-dandruff shampoos containing such anti-dandruff compositions which shampoos can optionally contain fragrance. Our invention further relates to a method for effecting significant reduction of itching of the scalp, medically known as *pruritis*, resulting from dandruff, by means of application to the scalp of such anti-dandruff shampoos. Our invention also relates to personal care products containing the aforementioned anti-itch compositions for reduction of itching including shampoos, soaps, ointments and creams.

RELATED PATENT APPLICATIONS

This application is a continuation-in-part of Application for U.S. Letters Patent Serial Number 10/067,596 filed on February 5, 2002.

BACKGROUND OF THE INVENTION

Seborrheic dermatitis, *pruritis* and dandruff represent wide-spread cosmetic problems. Methods for the treatment of seborrheic dermatitis, *pruritis* and dandruff are known in the art. Among the most common treatment regimens are washing with shampoos containing chloroxylonol, pyridinethione heavy metal salts including zinc, cadmium, magnesium, tin, aluminum and zirconium; salts such as zinc pyrithione, sulfur, selenium sulfide, salicylic acid, piroctone olamine also known as octopirox; hexachlorophene, resorcinol, coal tar, coal tar

extracts, coal tar solutions, ketoconazole, alkali metal salts and ammonium salts of low molecular weight huminates with a mean molecular weight of 1000 with a range of 300 to 1500, and certain cationics such as cetyldimethylbenzylammonium bromide followed by rinsing, as disclosed in U.S. Patent Numbers 4,470,982, 5,494,675, 5,641,480, 5,730,965 and 6,294,186. Shampoos which contain cooling sensates such as menthol and menthyl lactate are disclosed in U.S. Patent No. 6,294,186, cited above.

However, the uses of the aforementioned regimens have the disadvantage of stimulating the treated areas of the mammalian epidermis including the scalp to "grease up" within a relatively short period of time subsequent to use of the treatment agent, particularly when zinc pyrithione is employed in the personal care treatment agent, even when it is used in combination with cooling sensates such as menthol. Furthermore, certain sensory effects, such as: substantial soothing effects on use and post-use, substantial deep-cleansed effects on use and post-use, post-use significant itch reduction, substantial tingling effects on use and post-use, substantial warming effects on use and post-use, substantial cooling effects on use and post-use and a significant enhanced menthol/medicated aroma on use and post-use have heretofore not been achieved by the regimens disclosed in the prior art.

Accordingly, it is an object of our invention to provide compositions, personal care products containing same, and methods of employing such compositions and personal care products for the treatment of seborrheic dermatitis, *pruritis* and dandruff which (1) substantially avoid the aforementioned disadvantages and (2) provide the sensory effects.

Although the use in shampoos and other personal care products, e.g., lotions and creams, in general, of cooling sensates in combination with cooling sensate enhancers, are disclosed in the prior art, published European Patent Application 1,121,927 A2 and U.S. Patent No. 6,328,982, nothing in the prior art discloses or suggests, the unexpected and unobvious advantages obtained as a result of using cooling sensates such as menthol in combination with cooling sensate enhancers with anti-itch materials or anti-dandruff substances. The combination of these elements in a personal care product provide the following benefits for a substantial period of time post-use:

- (i) a substantial soothing effect;
- (ii) a deep-cleansed effect;
- (iii) a significant itch reduction;
- (iv) a substantial tingling effect;
- (v) a substantial warming effect;
- (vi) a substantial cooling effect; and/or
- (vii) a significantly enhanced “menthol/medicated” aroma.

SUMMARY OF THE INVENTION

Our invention provides anti-dandruff compositions and anti-itch compositions comprising:

- (a) an anti-dandruff agent or an anti-itch agent;
- (b) a cooling sensate material; and
- (c) a cooling sensate enhancer material.

The anti-dandruff compositions of our invention are useful as key components in anti-dandruff shampoos; and the anti-itch compositions of our invention are useful as key components in personal care products, specifically shampoos, ointments and creams. The shampoos and personal care products of our invention can optionally contain fragrances. On application and for an extended period of time subsequent to application to the mammalian epidermis, that is during use and from about 1 to about 30 minutes post-use, of the shampoos and personal care products of our invention, at least one of the following effects is exerted:

- (i) a substantial soothing effect;
- (ii) a deep-cleansed effect;
- (iii) a significant itch reduction;
- (iv) a substantial tingling effect;
- (v) a substantial warming effect;
- (vi) a substantial cooling effect; or
- (vii) a significantly enhanced “menthol/medicated” aroma

in a magnitude substantially and significantly greater than if the cooling sensate enhancer were not included in the anti-dandruff or anti-itch composition.

DETAILED DESCRIPTION OF THE INVENTION

In the anti-dandruff composition of our invention, the weight ratio of anti-dandruff agent:cooling sensate material:cooling sensate enhancer material is in the range of from about 0.7 to about 1.5 anti-dandruff agent: from about 0.5 to about 1.5 cooling sensate material: and from about 0.001 to about 0.1 cooling sensate enhancer. More preferably, the weight ratio of cooling sensate material:cooling sensate enhancer material is from about 1:0.1 to about 1:0.01.

In the anti-itch composition of our invention, the weight ratio of anti-itch agent:cooling sensate material:cooling sensate enhancer material is in the range of from about 0.7 to about 1.5 anti-itch agent:from about 0.5 to about 1.5 cooling sensate material:and from about 0.001 to about 0.1 cooling sensate enhancer material. More preferably, the weight ratio of cooling sensate material:cooling sensate enhancer material is from about 1:0.1 to about 1:0.01.

Examples of anti-dandruff agents useful in the practice of our invention are separately or in combination: chloroxylenol, as disclosed in U.S. Patent No. 5,730,965, pyridinethione heavy metal salts, e.g., zinc, cadmium, magnesium, tin, aluminum and zirconium salts, such as, zinc pyrithione, as disclosed in U.S. Patent No. 4,470,982, 1-hydroxy pyridones as disclosed in U.S. Patent No. 4,185,106, azole antimycotics, as disclosed in U.S. Patent No. 4,472,421, sulfur, ketoconazole, selenium sulfide, salicylic acid, piroctone olamine, hexachlorophene, resorcinol, coal tar, coal tar extracts, coal tar solutions, alkali metal salts and ammonium salts of low molecular weight huminates with a mean molecular weight of 1000 with a range of 300 to 1500, as disclosed in U.S. Patent No. 5,494,675, and certain cationics such as cetyltrimethylbenzylammonium bromide. A preferred anti-dandruff agent useful in the practice of our invention is zinc pyrithione. The anti-dandruff agent is provided in an amount sufficient to prevent or reduce dandruff, the weight percent of the anti-dandruff agent found in the shampoo is typically from about 0.1% to about 3.0% by weight of the shampoo, preferably from about 0.8% to about 1.2% by weight of the shampoo.

Examples of anti-itch agents useful in the practice of our invention are separately or in combination: chamomile, eucalyptus, camphor, talc, hydrocortisone, betamethasone valerate, fluocinolone acetonide, hydrocortisone valerate, triamcinolone acetonide, betamethasone dipropionate, halcinonide, clobetasol propionate and halobetasol propionate. The weight percent

of anti-itch agent used in the practice of our invention in a shampoo or personal care product such as a cream or a soap is from about 0.02% to about 3.0%.

Examples of cooling sensate materials useful in the practice of our invention are: hydroxy-lower alkyl derivatives of para-menthane, for example, 2-hydroxymethyl menthol as described in U.S. Patent Number 4,029,759, 1-isopulegol, mint oil, spearmint oil, peppermint oil, methyl salicylate, menthone, menthone glyceryl ketal, menthol, p-menthane diol, menthyl lactate, mono-menthyl succinate, alkali metal salts of mono-menthyl succinate, alkaline earth metal salts of mono-menthyl succinate, mono-menthyl glutarate, alkali metal salts of mono-menthyl glutarate, menthoxy-C₁-C₅ alkanols for example (d,l)-2-(5'-methyl-2'-(methylethyl)-cyclohexyloxy)-ethan-1-ol, as disclosed in published European Patent Application 1,122,233 A1, menthoxy C₁-C₅ alkyl ethers, C₁-C₃ alkyl or dialkyl-N-substituted menthane carboxamides, including N-ethyl-p-menthane carboxamide, as disclosed in U.S. Patent Numbers 4,296,093 and 6,303,817, menthoxy-C₁-C₅ alkanediols, C₁-C₃ alkyl or dialkyl-N-substituted C₅-C₁₂ alkyl carboxamides, for example, N,2,3-trimethyl-2-ethylbutanamide and N,2,3-trimethyl-2-isopropylbutyramide, as disclosed in U.S. Patent Number 4,153,679, alkylcyclohexyl sulfones and sulfoxides, for example, n-hexyl-1,2-diethylcyclohexyl sulfoxide as disclosed in U.S. Patent Number 4,032,661, and cyclic α -keto enamines, for example, 3-methyl-2-(1-pyrrolidinyl)-2-cyclohexen-1-one (as disclosed in Ottinger et al. *J.Agric.Food Chem.* 2001, 49, 5383-5390. A preferred cooling sensate material useful in the practice of our invention is N-ethyl-p-menthane carboxamide. A more preferable cooling sensate material useful in the practice of our invention is N,2,3-trimethyl-2-isopropyl-butylamide. In practicing our invention the cooling sensate material is provided in a shampoo or personal care product in a concentration of from about 0.1% to about 0.8% by weight of the shampoo or personal care product; preferably from about 0.2% to about 0.4%, with a substantially lesser concentration required when used in conjunction with cooling sensate enhancer materials.

Examples of cooling sensate enhancer materials which are sometimes referred to as warming sensates include: vanillyl C₂-C₈ alkyl ethers, such as vanillyl-n-butyl ether, menthoxymethyl dihydroxyphenyl dioxolanes and menthoxymethyl hydroxymethoxyphenyl dioxolanes, for example, 4-(1-menthoxymethyl)-2-phenyl-1,3-dioxolane, as disclosed in U.S. Patent 5,545,424, C₇-C₁₂ alkanolic acid vanillamides, for example, nonylic acid vanillamide, vanillin or ethyl vanillin C₃-C₆ alkylene glycol acetals, ginger oleoresin, capsicum oleoresin and capsaicin. A preferred cooling sensate enhancer is nonylic acid vanillamide. In practicing our

invention, the cooling sensate enhancer is provided in shampoos and personal care products at concentrations of from about 0.001% to about 0.02% by weight of the shampoo or personal care product. Use of such cooling sensate enhancers enables a substantial reduction of concentration of required cooling sensate material used in the shampoo or personal care product. Thus, for example, a substantially identical effect will be obtained when using 0.25% N,2,3-trimethyl-2-isopropyl-butyramide in conjunction with 0.002% nonylic acid vanillamide as when using, alone, 0.35% N,2,3-trimethyl-2-isopropyl- butyramide, in the absence of any cooling sensate enhancers.

Examples of cooling sensate materials which are sometimes referred to as tingling sensates include: Jambu oleoresin, Spilanthol, saanshool-I, saanshool-II, sanshoamide, *Piper nigrum*, *Zanthoxylum peperitum*, chavicine and piperine. A preferred tingling agent useful in the practice of our invention is Jambu Oleoresin. In practicing our invention, the tingling sensates are provided in shampoos and personal care products at levels of from about 0.01% to about 0.3% by weight of the shampoo or personal care product.

In general, the cooling sensate material and cooling sensate enhancer are provided in an amount sufficient to provide the beneficial effects described herein. These effects include but are not limited to a substantial soothing effect; a deep-cleansed effect; itch reduction; tingling effect; warming effect; cooling effect; and/or menthol aroma.

The anti-dandruff and anti-itch personal care compositions of our invention may optionally contain a fragrance, each of the components of which has a $C \log_{10} P$ (i) in the range of from about 1 to about 3, without restriction on the molecular weight of each of said components, (ii) in the range of from about greater than 3 to about 10 for components each of which has a molecular weight in the range of from about 120 to about 350 or (iii) in the range of from about 1 to about 3, without restriction on the molecular weight of each of said components and in the range of from about greater than 3 to about 10 for components each of which has a molecular weight in the range of from about 120 to about 350, wherein P is the n-octanol/water partition coefficient of the fragrance component. The concentration range of the fragrance in the personal care compositions of our invention is preferably from about 0.03% to about 5.0% by weight of the personal care composition.

The $\log_{10}P$ of many perfume ingredients has been reported; for example, the Pomona92 database, available from Daylight Chemical Information Systems, Inc., Daylight CIS, Irvine, California, contains many, along with citations to the original literature. However, the $\log_{10}P$ value are most conveniently calculated by the "CLOGP" program, also available from Daylight CIS. This program also lists experimental $\log_{10}P$ values when they are available in the Pomona92 database. The "calculated $\log_{10}P$ " ($\text{Clog}_{10}P$) is determined by the fragment approach of Hansch and Leo cf., A. Leo in Comprehensive Medicinal Chemistry, Vol.4, C. Hansch, P.G. Sammens, J. B. Taylor and C.A. Ramsden, Eds., p.295, Pergamon Press, 1990. The fragment approach is based on the chemical structure of each perfume ingredient, and takes into account the numbers and types of atoms, the atom connectivity and the chemical bonding. The $\text{Clog}_{10}P$ value which are the most reliable and widely used estimates for this physicochemical property, are preferably used instead of the experimental $\log_{10}P$ values for the selection of perfume ingredients which are useful in the anti-dandruff shampoos and anti-itch personal care products of our invention.

Specific examples of preferred fragrance components useful in the personal care products of our invention, and the molecular weights and $\text{Clog}_{10}P$ values of each of said components for each of groups (i), (ii) and (iii) defined supra are as follows:

Fragrance Component Group (i):

<u>Fragrance Component</u>	<u>Clog₁₀P value</u>	<u>Molecular Weight</u>
benzaldehyde	1.480	106.12
benzyl acetate	1.960	150.17
laevo-carvone	2.083	150.22
geraniol	2.649	154.26
cis-jasmone	2.712	164.25
β -phenylethyl alcohol	1.183	122.17
α -terpineol	2.569	154.25
δ -nonalactone	2.760	156.23
nerol	2.649	154.25
iso-eugenol	2.547	164.21
eugenol	2.307	164.21

Fragrance Component Group (ii):

<u>Fragrance Component</u>	<u>Clog₁₀P value</u>	<u>Molecular Weight</u>
amyl salicylate	4.601	208.26
benzyl salicylate	4.383	228.25
β -caryophyllene	6.333	204.36
cedrol	4.530	222.37
cedryl acetate	5.436	264.41
cedryl formate	5.070	238.37
cyclohexyl salicylate	5.265	220.29
γ -dodecalactone	4.359	198.31
ethyl undecylenate	4.888	212.34
geranyl anthranilate	4.216	273.38
α -irone	3.820	206.33
phenyl ethyl benzoate	4.058	226.28
phenylethyl phenyl acetate	3.767	240.31
5-acetyl-1,1,2,3,3,6-hexamethyl indane	5.977	258.41

<u>Fragrance Component</u>	<u>Clog₁₀P value</u>	<u>Molecular Weight</u>
cyclopentadecanolide	6.246	240.39
d-limonene	4.232	136.24
cis-p-t-butylcyclohexyl acetate	4.019	198.31
amyl cinnamic aldehyde	4.324	202.30
linalyl benzoate	5.233	258.36

Fragrance Component Group (iii):

<u>Fragrance Component</u>	<u>Clog₁₀P value</u>	<u>Molecular Weight</u>
benzaldehyde	1.480	106.12
benzyl acetate	1.960	150.17
laevo-carvone	2.083	150.22
geraniol	2.649	154.26
cis-jasmone	2.712	164.25
β -phenylethyl alcohol	1.183	122.17
α -terpineol	2.569	154.25
δ -nonalactone	2.760	156.23
dihydromyrcenol	3.03	156.27
δ -undecalactone	3.830	184.28
amyl cinnamate	3.771	218.30
benzophenone	3.120	182.22
α -irone	3.820	206.33
nerol	2.649	154.25
2-methoxynaphthalene	3.235	158.20
musk ketone	3.014	294.30
musk tibetine	3.831	266.30
myristicin	3.200	192.22
6-phenyl heptanol-2	3.478	193.30
1-phenyl hexanol-5	3.299	178.28
α -santalol	3.800	220.36
iso-eugenol	2.547	164.21

<u>Fragrance Component</u>	<u>Clog₁₀P value</u>	<u>Molecular Weight</u>
linalyl acetate	3.500	196.29
eugenol	2.307	164.21
amyl salicylate	4.601	208.26
benzyl salicylate	4.383	228.25
β -caryophyllene	6.333	204.36
cedrol	4.530	222.37
cedryl acetate	5.436	264.41
cedryl formate	5.070	238.37
cyclohexyl salicylate	5.265	220.29
γ -dodecalactone	4.359	198.31
ethyl undecylenate	4.888	212.34
geranyl anthranilate	4.216	273.38
β -phenylethyl benzoate	4.058	226.38
β -phenylethyl phenyl acetate	3.767	240.31
5-acetyl-1,1,2,3,3,6-hexamethyl indane	5.977	258.41
cyclopentadecanolide	6.246	240.39
d-limonene	4.232	136.24
cis-p-t-butylcyclohexyl acetate	4.019	198.31
amyl cinnamic aldehyde	4.324	202.30
linalyl benzoate	5.233	258.36

As stated herein, in the practice of our invention, the personal care products of our invention as well as for a substantial period of time post-use, e.g. from 1-30 minutes post-use exhibit:

- i. a substantial soothing effect;
- ii. a deep-cleansed effect;
- iii. a significant itch reduction;
- iv. a substantial tingling effect;
- v. a substantial warming effect;
- vi. a substantial cooling effect; and/or
- vii. a significantly enhanced “menthol/medicinal” aroma.

The term, “soothing effect” is intended herein to mean an effect measured using a combination of the following “soothing components”:

- A. irritation reduction with respect to the scalp, neck and facial areas of the mammalian epidermis;
- B. tightness reduction of the scalp, neck and facial areas of the mammalian epidermis;
- C. dryness feeling reduction of the scalp, neck and facial areas of the mammalian epidermis;
- D. moisturized feeling of the scalp, neck and facial areas of the mammalian epidermis; and/or
- E. coated or protected feeling of the scalp, neck and facial areas of the mammalian epidermis.

This soothing effect is herein, including in the Examples set forth below, quantified according to a scale of 1-10 with 10 being the most desirable soothing effect and 1 signifying no soothing effect. The soothing effect scaled value, V_S may be calculated using scaled value terms for each of the aforementioned soothing components, A, B, C, D and E, supra, in accordance with the following algorithm:

$$b_1\alpha + b_2\beta + b_3\gamma + b_4\delta + b_5\varepsilon = V_S$$

wherein the scaled values of the soothing components, A, B, C, D and E are, respectively, α , β , γ , δ and ε and b_1 , b_2 , b_3 , b_4 and b_5 are each, respectively, the magnitude of importance of each of the “soothing components”, A, B, C, D and E, with the provisos that:

$$\Sigma b_i = 1, \text{ and } 0.1 \leq b_i \leq 0.5$$

The value of each of the terms, b_i depend on the desired magnitude of personal and washing variables, e.g., type of hair, time of washing, and number of wash-rinse cycles. In the Examples contained herein, infra, where the value of V_S is shown, each of the terms b_i is 0.2.

The term, “deep-cleansed effect as measured by the IFF ‘DC’ test” is intended herein to mean an effect measured using a combination of the following “deep cleansing components”:

- V. audibility of a ‘squeak’ sound when a swatch of hair held between the thumb and forefinger is pulled through the fingers. The greater the number of decibels produced, the higher the value of the audibility of ‘squeak’ sound effect;
- W. degree of smoothness;
- X. degree of silkiness;
- Y. degree of grease-free and oil-free slipperiness; and/or
- Z. degree of vibration and roughness.

The “deep-cleansed” effect is herein (including in the Examples set forth infra) quantified according to a scale of “1” to “10” with a value of “10” being the most desirable “deep-cleansed” effect and a value of “1” signifying no “deep-cleansed” effect with an oily, greasy feel being present. The “deep-cleansed” effect scaled value, V_{DC} may be calculated using scaled value terms for each of the aforementioned “deep cleansing components”, V, W, X, Y and Z, supra, in accordance with the following algorithm:

$$a_1\chi + a_2\phi + a_3\eta + a_4\kappa + a_5\lambda = V_{DC}$$

wherein the scaled values of the “deep cleansing components”, V, W, X, Y and Z are, respectively, χ , ϕ , η , κ and λ and a_1 , a_2 , a_3 , a_4 and a_5 are each, respectively, the magnitude of importance of each of the “deep cleansing components”, V, W, X, Y and Z with the provisos that:

$$\sum a_i = 1, \text{ and } 0.1 \leq a_i \leq 0.5$$

The value of each of the terms, a_i depend on the desired magnitude of personal and washing variables, e.g., type of hair, time of washing and number of wash-rinse cycles. In the Examples contained herein, infra, where the value of V_{DC} is shown, each of the terms a_i is 0.2.

The term itching is herein intended to mean the peculiar and unpleasant irritating sensation of a given portion of the epidermis, e.g., scalp, face and neck of a person, that provokes the desire of said person to scratch said given portion of the epidermis.

The term tingling is herein intended to mean a lively “pins-and-needles” sensation of a given portion of the epidermis, e.g., scalp, face and neck, of a person.

The term “warming” is herein intended to mean the degree to which a product produces the sensation of heat, when applied to a portion of the epidermis, e.g., scalp, face and neck, of a person.

The term “cooling” is herein intended to mean the degree to which a product imparts a cool feeling when applied to a portion of the epidermis, e.g., scalp, face and neck of a person.

Each of the effects: “significant itch reduction”, “substantial tingling”, “substantial warming” and “substantial cooling” is measured with reference to the scalp, facial and neck portions of the mammalian epidermis; and each of these effects are herein, including in the Examples, infra also quantified according to a scale of 1-10 with a value of 10 signifying the most desirable effect, and a value of 1 signifying no such effect.

The significantly enhanced menthol/medicated aroma effect is herein measured with reference to the eyes and nasal pathways on use of the personal products of our invention; and such effect is herein including in the Examples, also quantified according to a scale of 1-10 with a value of 10 signifying the most desirable effect and a value of 1 signifying no such effect.

The personal care products useful in the practice of our invention include shampoos, creams, ointments and soaps. More specifically shampoos as exemplified in U.S. Patent Numbers 4,470,982, 5,624,666, 5,641,480, 5,955,066, 6,200,554, 6,248,315 and 6,297,203, are useful in the practice of our invention. In addition to shampoos, the personal care products useful in the practice of the invention include soaps, ointments, creams and lotions, all of which are well known in the art. These forms and methods for making them are disclosed in US Patent Numbers 6,338,855, 6,210,695 and 6,299,900.

The following non-limiting examples are presented for purposes of illustration, unless noted to the contrary all ingredients are provided by weight.

EXAMPLE A

PREPARATION OF FRAGRANCE FOR USE IN SHAMPOO OF EXAMPLE B

The following fragrance is prepared for use with the shampoo of Example B, infra:

<u>Ingredients</u>	<u>Parts by Weight</u>
α -irone	7.0
myristicin	4.0
2-methoxynaphthalene	3.0
benzaldehyde	2.0
β -phenylethyl alcohol	12.0
nerol	7.0
eugenol	8.0
isoeugenol	2.0
amyl salicylate	4.0
β -caryophyllene	14.0
cedryl acetate	16.0
cyclohexyl salicylate	4.0
γ -dodecalactone	3.0
geranyl anthranilate	3.0

EXAMPLE B
PREPARATION OF FRAGRANCE-CONTAINING SHAMPOO BASE FOR USE IN
CONJUNCTION WITH EXAMPLES I-IX, INCLUSIVE, INFRA

At the rate of 0.8%, the fragrance prepared according to Example A, is admixed with the following aqueous shampoo base:

<u>Component</u>	<u>Parts by Weight</u>
ammonium lauryl sulfate (27% aqueous solution)	56.0
citric acid	0.50
sodium citrate	0.50
coconut monoethanolamide	5.0
ethylene glycol distearate	3.0
methyl paraben	0.50
propyl paraben	0.50
color solution	0.20
water	33.8

EXAMPLE I

To the shampoo of Example B, zinc pyrithione at the rate of 1%, menthol at the rate of 0.5%, N,2,3-trimethyl-2-isopropyl-butyramide at the rate of 0.35% and nonylic acid vanillamide at the rate of 0.002% is added. The effects exerted during use and post-use of the shampoo are set forth in the Tables I, II and III of the results, infra.

EXAMPLE II

To the shampoo Example B, zinc pyrithione at the rate of 1% and menthol at the rate of 0.5 is added. The effects exerted during use and post-use of the shampoo are set forth in the Tables I, II and III of the results, infra.

EXAMPLE III

To the shampoo of Example B, zinc pyrithione at the rate of 1%, menthol at the rate of 0.5% and N,2,3-trimethyl-2-isopropyl-butyramide at the rate of 0.35% is added. The effects exerted during use and post-use of the shampoo are set forth in Tables I, II and III of the results, *infra*.

EXAMPLE IV

To the shampoo of Example B, N,2,3-trimethyl-2-isopropyl-butyramide at the rate of 0.35% and nonyl acid vanillamide at the rate of 0.002% is added. The effects exerted during use and post-use of the shampoo are set forth in Tables I, II and III of the results, *infra*.

EXAMPLE V

To the shampoo of Example B, N,2,3-trimethyl-2-isopropyl-butyramide at the rate of 0.35% is added. The effects exerted during use and post-use of the shampoo are set forth in Tables I, II and III of the results, *infra*.

TABLES I, II and III OF RESULTS

In the following Tables I, II and III, the effects for which values, determined using a 17 member panel; and as defined *supra*, including the 'soothing effect', V_s and the 'deep cleansing effect', V_{DC} are set forth as follows:

- i. a substantial soothing effect
- ii. a deep-cleansed effect
- iii. a significant itch reduction
- iv. a substantial tingling effect
- v. a substantial warming effect
- vi. a substantial cooling effect
- vii. a significantly enhanced "menthol/medicinal" effect

TABLE I OF RESULTS

Example	Value of Effect(i) (V _s)(soothing)		Value of Effect(ii) (V _{DC})(deep cleansing)		Value of Effect (iii) (itch reduction)	
	on use	5 min. post use	on use	5 min. post use	on use	5 min. post use
I	10	10	7	6	10	10
II	6	5	8	8	7	7
III	10	10	7	7	10	7
IV	8	8	-	-	10	10
V	7	7	-	-	10	9
B	3	3	3	3	7	7

TABLE II OF RESULTS

Example	Value of Effect(iv) (tingling)		Value of Effect(v) (warming)		Value of Effect (vi) (cooling)	
	on use	5 min. post use	on use	5 min. post use	on use	5 min. post use
I	10	9	10	6	9	8
II	8	8	9	6	6	6
III	9	10	9	6	9	7
IV	10	9	6.6	2.6	5.7	4.7
V	9	10	6.0	3.4	5.1	4.0
B	1	1	8	7	3	1

TABLE III OF RESULTS

Example	Value of Effect(vii) (menthol/medicated)		Arithmetic Average of Effects (i) –(vii), inclusive	
	on use	5 min. post use	on use	5 min. post use
I	8	8	9.14	8.14
II	8	8	7.43	6.86
III	10	10	9.14	9.00
IV	-	-	8.06	6.86
V	-	-	7.42	6.68
B	1	1	3.25	3.00

EXAMPLE VI

To the shampoo of Example B, zinc pyrithione at the rate of 1%, menthol at the rate of 0.5%, N,2,3-trimethyl-2-isopropyl-butyramide at the rate of 0.35% and 0.02% Jambu oleoresin is added. The effects exerted during use and post-use of the resulting shampoo are set forth in Tables IV, V and VI of Results.

EXAMPLE IV

To the shampoo of Example B, zinc pyrithione at the rate of 1%, menthol at the rate of 0.5%, N,2,3-trimethyl-2-isopropyl-butyramide at the rate of 0.35% and vanillyl-n-butyl ether at the rate of 0.05% is added. The effects exerted during use and post-use of the resulting shampoo are set forth in Tables IV, V and VI of Results.

EXAMPLE VIII

To the shampoo of Example B supra, zinc pyrithione at the rate of 1%, menthol at the rate of 0.5% and Jambu oleoresin at the rate of 0.2% is added. The effects exerted during use and post-use of the resulting shampoo are set forth in Tables IV, V and VI of Results.

EXAMPLE IX

To the shampoo of Example B supra, zinc pyrithione at the rate of 1% and Jambu oleoresin at the rate of 0.2% is added. The effects exerted during use and post-use of the resulting shampoo are set forth in Tables IV, V and VI of Results.

TABLES IV, V and VI OF RESULTS

In the following Tables IV, V and VI, the ‘effects’ for which values, determined using a 17 member panel; and as defined supra, including V_S and V_{DC} are set forth are as follows:

- i. a substantial soothing effect;
- ii. a deep-cleansed effect;
- iii. a significant itch reduction;
- iv. a substantial tingling effect;
- v. a substantial warming effect;
- vi. a substantial cooling effect; and/or
- vii. a significantly enhanced “menthol/medicinal” aroma.

TABLE IV OF RESULTS

Example	Value of Effect(i) (V_S)(soothing)		Value of Effect (ii) (V_{DC})(deep cleansing)		Value of Effect(iii) (itch reduction)	
	on use	5 min. post-use	on use	5 min. post-use	on use	5 min. post-use
VI	10	10	7	6	10	10
VII	6	5	7	6	10	3
VIII	6	5	10	10	10	1
IX	3	3	3	3	10	3
B	3	3	3	3	7	7

TABLE V OF RESULTS

Example	Value of Effect(iv) (tingling)		Value of Effect (v) (warming)		Value of Effect(vi) (cooling)	
	on use	5 min. post-use	on use	5 min. post-use	on use	5 min. post-use
VI	8	7	9	6	7	6
VII	9	8	10	8	7	6
VIII	10	7	9	5	9	4
IX	3	5	9	5	4	3
B	1	1	8	7	3	1

TABLE VI OF RESULTS

Example	Value of Effect(vii) (menthol/medicated)	
	on use	5 min. post-use
VI	8	8
VII	10	10
VIII	5	5
IX	1	1
B	1	1

The foregoing Tables I-VI of results, inclusive, are indicative of the unexpected, unobvious and advantageous properties of the sensate compositions and personal care products defined of the invention.

From the foregoing, it will be appreciated that, although specific embodiments of the invention have been described herein for purposes of illustration, various modifications may be made without deviating from the spirit and scope of the invention. Accordingly, the invention is not limited except as by the appended claims.

**CITED U.S. PATENTS AND PUBLISHED PATENT APPLICATIONS INCORPORATED
HEREIN BY REFERENCE**

All U.S. Patents and Published Patent Applications as set forth in the specification are herein incorporated by reference.